Maine Forestry Best Management Practices Use and Effectiveness Executive Summary 2008

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August 2009

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Printed under Appropriation 010 04A 5440 512

Executive Summary

The 2008 Maine Forest Service (MFS) report on the use and effectiveness of forestry Best Management Practices (BMPs) presents the fourth year of data collection and analysis utilizing "Best Management Practices Implementation Monitoring Protocol," an original project of the Northeastern Area Association of State Foresters' (NAASF) Water Resources Committee. This protocol assesses the overall effectiveness of the suite of BMPs used rather than monitoring the simple installation of prescribed, individual practices, which do not necessarily guarantee success in protecting water quality.[1]

The findings present an analysis of data collected between May and December 2008. The objective of this ongoing effort is to assess the use and effectiveness of BMPs in Maine. MFS uses BMP monitoring to focus educational outreach efforts to loggers, foresters, and landowners and identify trends for targeting technical assistance. As BMPs are voluntary measures to protect water quality, MFS does not use BMP monitoring to assess compliance with nor enforce laws and rules. When monitoring staff observe concerns or minor issues during BMP monitoring, MFS works closely with the landowner in a non-regulatory manner to seek corrective measures. Education and intervention usually result in quick corrective action, thereby avoiding lengthy regulatory processes that may prolong erosion problems and result in greater negative environmental impacts. Dealing with minor issues in this manner also increases landowner willingness to cooperate with the BMP monitoring process, resulting in a more comprehensive picture of BMP use.

Assessing the overall effectiveness of the suite of BMPs used rather than monitoring the installation of prescribed individual practices supports MFS's desire to pursue outcome-based forest policy, a science-based voluntary process that achieves mutually beneficial economic, environmental, and social outcomes in the state's forests. Outcome-based policies are an alternative to prescriptive regulation. They demonstrate measurable progress towards achieving statewide sustainability goals and allow landowners to use creativity and flexibility to achieve objectives, while providing for the conservation of public trust resources and the public values of forests.

MFS has conducted random, statewide monitoring of BMPs on timber harvesting operations since March 2000. MFS continues this monitoring effort as a part of regular field activities and expects to generate subsequent reports.

BMPs were used appropriately at 41% of the monitored harvests in 2000. In 2008, BMPs prevented measurable sediment from reaching the waterbody at 72% of stream crossings and 92% of approaches to the crossings.

[1] Welsch D., R. Ryder, T. Post. 2007. Best Management Practice (BMP) Manual –Field Guide: Monitoring, Implementation, And Effectiveness for Protection of Water Resources: U.S. Department of Agriculture, Forest Service, NA-FR-02-06, 129 pp.

For this reporting period, key findings regarding the use and effectiveness of BMPs are:

- **Of the 615 opportunities to observe soil conditions, 87% showed no sediment reached the waterbody, the same level as 2006-2007 and a 4% improvement from the 2005 reporting period.[2]**
- **BMPs were not applied on 4% of crossings, the same level as 2006-2007. BMPs were not applied at 2% of approaches, also the same as 2006-2007.**
- **Sedimentation events were most often related to the inadequate application of BMPs rather than a lack of BMP application.**
- **Forty-four percent of the sample units did not have water crossings. This may be due to no water present in the sample unit or a stream crossing purposely avoided through pre-harvest planning. Pre-harvest planning and harvest layout can help identify and protect sensitive areas, reduce skid trails, and avoid unnecessary stream crossings.**
- **11% more structures spanned the bankfull channel width in 2008 than 2006-2007. Stream channel bankfull width is measured from the average high water mark that is expected to occur two out of every three years. Crossings that span the bankfull width are less likely to impede the movement of aquatic organisms and are at lower risk of catastrophic failure due to high flow events.**

The monitoring identified two areas that need improvement:

1 - Sedimentation associated with crossing structures. Sedimentation associated with crossing structures has shown up as a consistent issue in BMP monitoring over the past 4 years. The 2008 data continue to show that crossing structures are the most common source of sedimentation. It can be extremely difficult to keep all soil from reaching a waterbody, but siltation and sedimentation can be minimized to the point that they do not affect the biological activity of the associated waterbody. To improve understanding of the potential impacts of crossing structure sedimentation, 2009 monitoring will collect data on sediment volumes entering waterbodies.

In most cases either inadequate maintenance or installation of additional BMPs was the primary cause of sedimentation at crossings. This indicates an opportunity for increased training of foresters, loggers and machine operators on the importance of maintaining BMPs once they are installed and reinforcing or installing additional BMPs as conditions change.

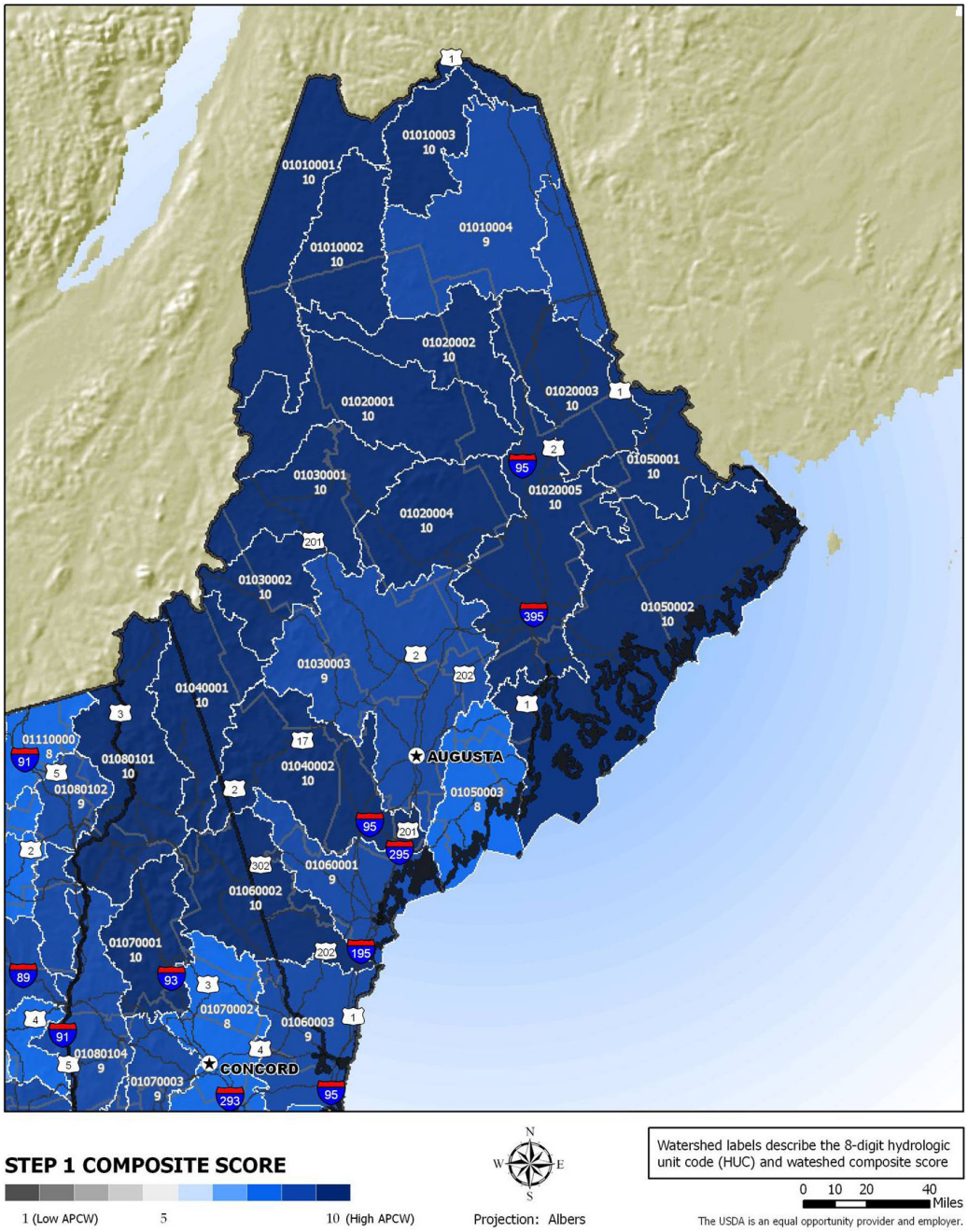
[2] Note: Due to small sample sizes, movement of percentages up or down by 5% or less is considered insignificant.

2 - Undersized crossing structures. Although 2008 monitoring data showed a improvement over 2006-2007 in the percentage of stream crossings that spanned bankfull width, undersized crossing structures continue to be a problem. Undersized crossings can lead to conditions that limit fish passage including increased flow velocities, perched outlets and accumulated debris barriers. That undersized crossings would continue to be a problem is not surprising since upgrading crossing structures so they do not restrict the stream channel is costly and replacement of crossings would be expected to progress at a slow rate.

While the monitoring identified areas where there is room for improvement it is important to view the results in the proper historical context. Over the last several decades there has been a fundamental change for the better in how water quality is treated by forestry and logging professionals. This change has happened for many reasons but for most in the industry BMPs have become "just the way we do business". The results speak for themselves - it is Maine's working forests that produce the clean water that Mainers expect and depend on. In a recent analysis by the USDA Forest Service of 20 northeastern states "Maine scored the highest in its ability to produce clean water. The majority of it's watersheds received the highest possible score in this index showing a watershed's ability to produce clean drinking water".[3]

Then and now. As recently as the 1970's little consideration was given to protecting water quality on timber harvests as the highly eroded banks in the log drive photo on the left illustrates. In contrast, today there is a general acceptance of BMPs by the forestry and logging professions. Sights like forwarders being used to minimize ground disturbance and temporary bridges to protect the integrity of stream channels indicate how far BMPs have come.

[3] Barnes, M., A.Todd, R.Whitney Lilja, and P. Barton. 2009. Forests, Water and People: Drinking water supply and forest lands in the Northeast and Midwest United States. USDA Forest Service, Northeastern Area State and Private Forestry, 11 Campus Boulevard, Suite 200, Newtown Square, PA 19073 NA-FR-01-08.



USDA Forest Service Analysis showing the ablilty of Maine's watersheds to produce clean drinking water . Darker colors indicate greater abilty to produce clean water. The same forests that prodouce this clean water also support a harvest of approximately 6,000,000 cords of wood annualy.

Acknowledgements

MFS obtained landowner permission prior to conducting BMP surveys. Landowners, loggers, and foresters often accompany MFS field staff during site evaluations. With a 90% positive response to MFS survey requests, it is evident that Maine

landowners are sincere about responsible timber harvesting practices that protect and enhance water quality. MFS is grateful for such a high rate of positive responses and active landowner participation, without which this comprehensive report would not be possible.

MFS also extends appreciation to Pat Sirois, Maine's Sustainable Forestry Initiative Coordinator, and Tim Post and Dick Morse, MFS Field Team Leaders, who acted as quality control teams, assuring consistent application and interpretation of the monitoring protocol by MFS field staff.

Ethel Wilkerson of the Manomet Center for Conservation Sciences and David Welsch, Watershed Specialist, USDA Forest Service Northeastern Area State & Private Forestry (NA) reviewed the draft manuscript and provided many helpful comments.

Additional appreciation is expressed to David Welsch for assistance and training in running the standardized reporting system, which greatly assisted in efficient final report development and timely public availability.

Absent significant changes in staffing levels or bureau priorities, MFS expects to continue BMP monitoring indefinitely and to report periodically on the most recent data utilizing the USDA Forest Service - Northeastern Area, Best Management Practices Protocol: Monitoring Implementation and Effectiveness for Protection of Water Resources.

Note: The data in this document were generated using the procedures outlined in the two volumes of the **Best Management Practices (BMP) Monitoring Manual: Implementation and Effectiveness for Protection of Water Resources**:

Field Guide (NA–FR–02–06)
Desk Reference (NA–FR–02–07)

Both documents were published by:

USDA Forest Service
Northeastern Area State and Private Forestry
11 Campus Boulevard, Suite 200
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Online versions are available at: http://na.fs.fed.us/watershed/bmp.shtm